

**THAT WHICH IS CLAIMED IS:**

1. A method for the preparation and execution of a self-test procedure to validate the behavior of a processor model to be tested, the processor model being a processor or an associated simulator, wherein the method comprises the following steps, consisting in:

- receiving specifications (E2) from a user concerning at least one instruction to be tested of a set of instructions of the processor model,
- 10 reading (E4), in a table, characteristic data of the processor model to be tested, the data comprising especially a functional definition of the instruction to be tested and a functional definition of the elements of the processor model,
- 15 computing an expected result (E6) at the end of the execution of the instruction to be tested, the computation being made from specifications of the user and characteristic data of the processor model, and
- making the model to be tested carry out a
- 20 self-test procedure (E8) to validate the instruction to be tested, the self-test procedure giving, in return, a result word that is equal to a first value (OK) if the behavior of the processor model is right, and equal to a second value (ERROR) if the behavior of the processor
- 25 model is not right.

2. A method according to claim 1, wherein the self-test procedure (E8) comprises the following sub-steps, consisting in:

- initializing (E81) the elements of the
- 5 processor model to be tested,

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executing the instruction to be tested (E82)  
and obtaining a result,

comparing the obtained result (E83) and the  
expected result, and

10 giving (E84) a word that is the result of the  
comparison (OK/ERROR).

3. A method according to one of the claims 1  
to 2, wherein at least two instructions of the set of  
instructions of the processor model are executed  
successively, to validate the performance  
5 characteristics of the processor model to be tested.

4. A method according to claim 1, comprising  
the following steps, consisting in:

making the model to be tested carry out a  
self-test procedure (E8) and receiving a result word,

5 taking a decision (E10): if the above result  
is equal to the first value, then performing a step  
E12, else, if the above result is equal to the second  
value (ERROR), carrying out a step E14,

taking a decision (E12): if another self-  
10 test procedure has to be executed, then carrying out a  
new step E8, if not, end of method, and

storing (E14) information on the self-test  
procedure performed previously, the information  
containing especially an address at which an error has  
15 been detected, and then end of method.

5. A method according to claim 4,  
furthermore comprising the following initialization  
steps, to be executed before the first step E8:

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receiving specifications from a user (E'2)  
5 concerning at least two self-test procedures,  
reading (E'4), in a table, characteristic  
data of the processor model to be tested, necessary for  
the execution of the self-test procedures,  
executing (E'6) several steps E6  
10 successively, each step E6 corresponding to a self-test  
procedure.

6. A method according to one of the claims 4  
or 5, furthermore comprising the following step E7,  
executed after the step E'6 and consisting in:  
giving a statistical study (E7) of the  
5 instructions to be tested during the following steps  
E8, to estimate the coverage of the set of instructions  
and performance characteristics of the processor model  
to be validated.

7. A method according to any of the claims 4  
to 6, furthermore comprising the following step E16,  
performed at the end of the method and consisting in:  
giving a statistical study (E16) of the  
5 results (OK/ERROR) furnished during all the self-test  
procedures (E8) executed by the model being tested.

8. A method for the generation of self-test  
programs, comprising the steps E2 to E6 of the method  
according to one of the claims 1 to 7, and furthermore  
comprising the following step E'8:  
5 writing (E'8) a self-test program to obtain  
the execution of a self-test procedure (E8) by the  
processor model.

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9. A method according to claim 8 wherein,  
during the step E'8, the self-test program is written  
in an assembler type language, that can be understood  
and executed by all the models to be tested of one and  
5 the same processor.

10. A method according to one of the claims  
8 or 9, wherein the step E81 is performed on the basis  
of instructions of the set of the instructions of the  
model to be tested.

11. A method according to one of the claims  
8 to 10, implemented in the form of a program written  
in an advanced DGL and/or C++ type language that can be  
understood by the user.

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